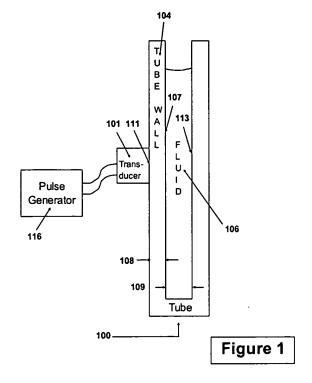
INVENTOR: Rocco DiFoggio
TITLE: Method and Apparatus For An Acoustic Pulse...
ATTORNEY: G. Michael Roebuck TELEPHONE NO.: 713-266-1130
EXPRESS NO.: EV369817945US DOCKET NO.: 584-30656-US

SHEET 1 OF 9



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TITLE:

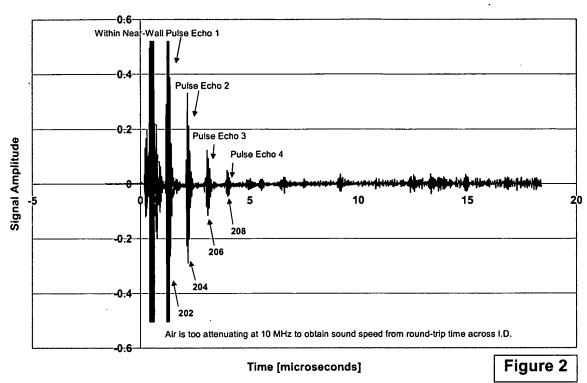
ATTORNEY:

Method and Apparatus For An Acoustic Pulse...
G. Michael Roebuck TELEPHONE NO.: 713-266-1130

SHEET 2 OF 9

EXPRESS NO.: EV369817945US DOCKET NO.: 584-30656-US

Acoustic Pulse Echoes for Air



Rocco DiFoggio

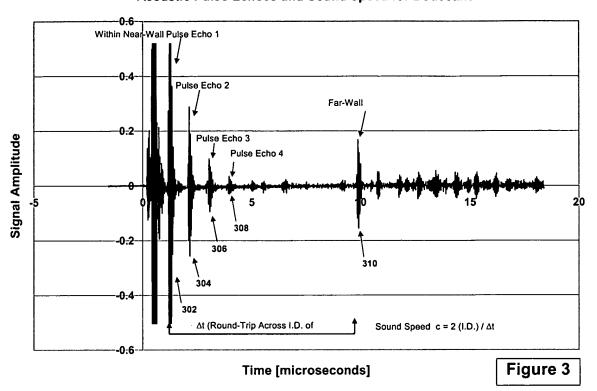
TITLE:

Method and Apparatus For An Acoustic Pulse...

ATTORNEY: G. Michael Roebuck TELEPHONE NO.: 713-266-1130 EXPRESS NO.: EV369817945US DOCKET NO.: 584-30656-US

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Acoustic Pulse Echoes and Sound Speed for Dodecane



Rocco DiFoggio

TITLE:

Method and Apparatus For An Acoustic Pulse...

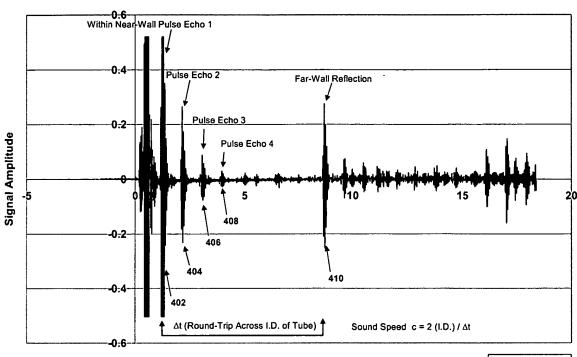
ATTORNEY: EXPRESS NO.: EV369817945US

G. Michael Roebuck TELEPHONE NO.: 713-266-1130

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Acoustic Pulse Echoes and Sound Speed for Water



Time [microseconds]

Figure 4

Rocco DiFoggio

TITLE:

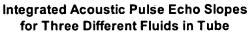
Method and Apparatus For An Acoustic Pulse...

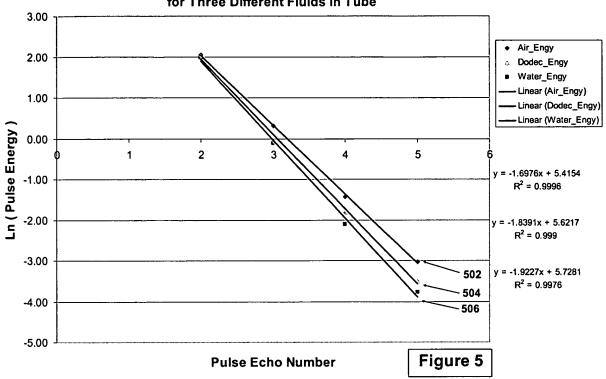
ATTORNEY: G. Michael R

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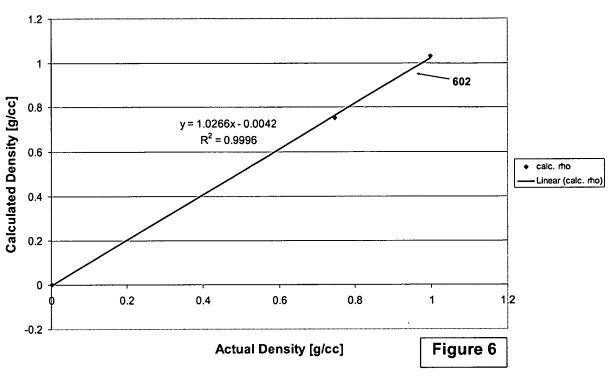
Method and Apparatus For An Acoustic Pulse...

ATTORNEY: **EXPRESS NO.:** G. Michael Roebuck TELEPHONE NO.: 713-266-1130 EV369817945US

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Comparison of Calculated to Actual Rho when Assume that Slope of Air-Filled Tube Represents 100% Reflection



Rocco DiFoggio

TITLE:

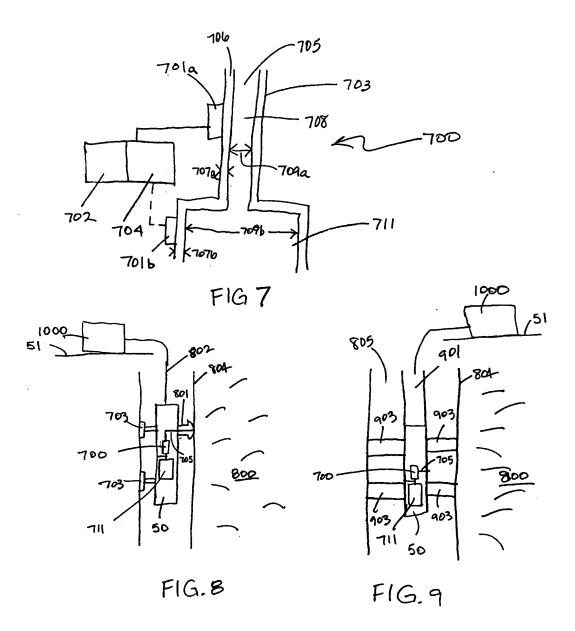
Method and Apparatus For An Acoustic Pulse...

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EXPRESS NO.: EV369817945US DOCKET NO.: 584-30656-US

SHEET 7 OF 9



INVENTOR: TITLE:

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The South

Expose Fluid to Sensor 1001 Send Acoustic Pulse into Near Wall __ 1003 Integrate Energy within Each Pulse Echo 1005 Determine Fluid's Impedance from 1007 Reflection at Near-Wall / Fluid Interface Calculate Sound Speed in Fluid 1009 **Determine Density of Fluid** 1011

Figure 10

1013

Determine Viscosity of Fluid

Rocco DiFoggio

TITLE:

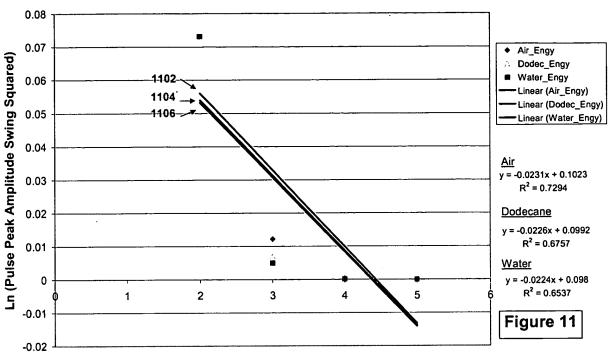
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Non-Integrated Acoustic Pulse Echo Slopes for Three Different Fluids in Tube



Pulse Echo Number